California
Air Resources Board
Strategic Plan

California Environmental Protection Agency

Air Resources Board

EXECUTIVE SUMMARY

ABOUT US

The California Air Resources Board (ARB) is the state agency responsible for protecting public health and the environment from the harmful effects of air pollution. ARB has 11 Governor-appointed board members and about 1,000 staff in nine divisions.

ARB oversees all air pollution control efforts in California, including the activities of 35 independent local air districts. State law vests ARB with direct authority to regulate pollution from motor vehicles, fuels, and consumer products. Primary responsibility for controlling pollution from business and industry lies with the local air districts. The federal government retains the exclusive authority to regulate interstate trucks registered outside California, certain new farm and construction equipment, new locomotives, ships, and aircraft. ARB works in cooperation with the districts and the U.S. Environmental Protection Agency (U.S. EPA) on strategies to attain State and federal ambient air quality standards and reduce air toxics emissions.

The scientific backbone of California's air quality programs is ARB's research and technical work on the causes, effects, and methods for control of air pollution. Our extensive health effects studies allow us to assess whether our current programs adequately protect the health of all Californians and enable us to identify pollutants of most concern. California's air monitoring network, emission inventory, and atmospheric modeling capability are the most extensive in the nation. This scientific foundation provides us with the information needed to pursue effective strategies to cut air emissions and reduce health impacts from air pollution.

California's air quality program has achieved impressive clean air progress over the past decades. In the Los Angeles area, peak ozone concentrations declined over fifty percent from 1980 to 2000, while average levels of inhalable particulate matter (PM10) fell by over twenty percent from 1988 to 2000. The number of unhealthy days has improved considerably across the State, down by almost half between 1980 to 2000 in Los Angeles. The decline in statewide health risk from air toxics, like benzene and lead, has been equally dramatic. However, California still has a long way to go to achieve its clean air goals; nearly all Californians still breathe unhealthy air at times. This Plan reflects ARB staff's commitment to clean air and a healthy future for all Californians.

ABOUT OUR STRATEGIC PLAN

We drafted our 2001 Strategic Plan within the framework established by the California Environmental Protection Agency's (Cal/EPA) *Strategic Vision*. The plan does not detail all of ARB's efforts, but rather focuses on new activities needed to meet our clean air goals, including specific milestones through 2002. The goals identified in the Strategic Plan complement Cal/EPA's *Strategic Vision* and build upon our ongoing programs.

OUR VISION

All individuals in California, especially children and the elderly, can live, work, and play in a healthful environment—free from harmful exposure to air pollution.

OUR MISSION

To promote and protect the public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants, while recognizing and considering the effects on the economy of the State.

OUR VALUES

- Leadership
- Innovation
- Open access
- Collaboration
- Integrity
- Quality
- Accountability
- Objectivity
- Professionalism

OUR GOALS

The Board's priorities are dictated by its mandate to protect public health and the environment. This Strategic Plan describes the primary goals we are pursuing to assess and reduce the impacts of air pollution on our children, our communities, and our state. These goals include:

- Develop and implement new strategies to effectively reduce air pollution.
- Incorporate environmental justice principles into ARB actions to reduce the impacts of air pollution on communities.
- Promote the development, commercialization, and use of zero- and near-zero emission technologies.
- Ensure our regulatory programs achieve the necessary emission reductions through compliance assistance paired with aggressive, firm, and fair enforcement.

- Improve our scientific understanding of the relationship between air pollution and health effects.

- Improve our technical tools to assess the nature and sources of air pollution and to evaluate the effectiveness of air quality improvement strategies.

- Recognize ARB employees' expertise, innovation, and commitment to public health and clean air.

The relationship between the goals established in Cal/EPA's Strategic Vision and these goals is displayed in the table on page 5

ACHIEVING OUR GOALS

This Strategic Plan provides our overarching vision to improve air quality in California. Specific actions to achieve our priorities are described in clean air plans to achieve ozone and particulate matter standards, the Diesel Risk Reduction Plan, our Community Health Program, 2001 Environmental Justice Action Plan, and other documents.

The primary blueprint for our air quality improvement programs will be ARB's Clean Air Plan: Strategies for a Healthy Future. This comprehensive plan will identify actions we can take to reduce all pollutants over the next two decades. The Clean Air Plan will identify new strategies to be considered over the next few years as well as take a long-term view. As we look long-term, we need to address growth and continue progress towards zero-emission technologies. The plan will identify potential control measures and emission reduction goals for categories of sources under state and federal jurisdiction. It will also include guidance and suggested measures for adoption by local air districts. The plan is designed to integrate our efforts to reduce ozone, particulate matter, and toxic air pollutants, as well as cut California's contribution to global climate change.

Reducing health risk from diesel particulate emissions is one of the Board's highest priorities. The Board's Diesel Risk Reduction Plan identifies strategies to reduce significantly diesel particulate emissions, which we estimate accounts for over 70 percent of all quantified airborne cancer risk. The Board will consider specific measures to implement the Diesel Risk Reduction Plan and to address the priority air toxics identified under the Children's Environmental Health Protection Program (Senate Bill 25, 1999) over the next several years.

Outreach and cooperative efforts with community, industry, academic, and governmental stakeholders are critical to achieving our goals. We must consult with communities to help identify priorities and address local air quality concerns. We must work with businesses to identify feasible and cost-effective controls and reasonable implementation timeframes. We must work with academic institutions to provide the highest level of scientific information for our programs.

In the years ahead, we must also work closely with other state, federal, and local government agencies to ensure that sources under their authority implement all feasible emission reduction strategies and to ensure that we collectively address multimedia environmental issues.

PERFORMANCE INDICATORS

As part of the implementation of its *Strategic Vision*, Cal/EPA is pursuing the Environmental Protection Indicators for California (EPIC) Project. Environmental indicators are scientific measures of the status of and trends in air quality, water quality and other related parameters. They reflect pressures exerted on the environment by human activities and the resulting effects on human or ecological health.

Cal/EPA boards, department, and offices have established a process to identify, select, and develop environmental indicators. Using this process, an initial set of indicators has been generated. These will be incorporated into a report to be submitted to the Agency Secretary in September 2001.

The environmental indicators will serve as a tool to measure progress towards achieving Cal/EPA's mission and as a foundation of future Cal/EPA results-based management. The EPIC indicators will be linked to Strategic Goals 1 through 6 of Cal/EPA's *Strategic Vision* document, illustrating how programs implemented or data collected by a board, department, or office, relate to these goals. Ultimately the boards, department, and offices will incorporate the indicators as measures of success in future strategic plans.

Connection between Cal/EPA Strategic Vision Goals and Goals in ARB's Strategic Plan

Cal/EPA Vision Goals / ARB Strategic Plan Goals	*Goal 1* Clean Air	*Goal 2* Clean River, Lake, Estuary, and Marine Waters	*Goal 3* Clean Drinking Water	*Goal 4* Communities Free from Toxic Risk	*Goal 5* Reduce or Eliminate Disproportion-ate Pollution Impacts	*Goal 6* Efficient Use of Natural Resources	*Goal 7* Continuous Improvement	*Goal 8* Efficient and Effective Cal/EPA
Goal 1 New Strategies to Effectively Reduce Air Pollution	X	X	X	X	X		X	X
Goal 2 Environmental Justice Principles	X			X	X		X	X
Goal 3 Zero-Emission Technologies	X	X	X	X	X	X	X	X
Goal 4 Effective Compliance Assistance and Enforcement	X	X	X	X	X		X	X
Goal 5 Sound Understand-ing of Health Effects	X						X	X
Goal 6 Sound Technical Tools	X	X					X	X
Goal 7 Recognize ARB's Employee's Strengths							X	X

GOALS AND STRATEGIES

This section of the Strategic Plan discusses our seven goals and includes key strategies that ARB will pursue to achieve each goal. Following each strategy, we identify significant milestones and deliverables through the end of 2002.

Goal 1: Develop and implement new strategies to effectively reduce air pollution.

The State's residents, businesses, and agencies have made tremendous progress in improving our air quality, especially in the Los Angeles region. Yet, over 90 percent of Californians still live in areas with air that is unhealthy at times. There is an immediate and continuing need for new measures to meet California's obligations under the federal Clean Air Act, make progress towards the State's own air quality standards, reduce air toxics in all communities, and offset emissions growth. As we reduce air emissions, we will pursue strategies such as pollution prevention that may have other positive environmental impacts.

- ***Adopt and implement new strategies to cut ozone, particulate matter, and air toxics from all sources.***

  ARB will continue to develop and implement technology-advancing, cost-effective emission reduction measures for all sources under our control including cars and trucks, off-road equipment, recreational vehicles, fuels and fueling operations, and consumer products. We will supplement emission standards for new vehicles and products with retrofit requirements and incentives (like the Carl Moyer program) to clean up the existing fleet of vehicles and equipment. For air toxics, our highest priority is reducing particulate matter from diesel engines. We are also proposing other air toxics measures to reduce community health risk. To cut personal exposure, we are examining ways to address indoor air pollution. ARB will also work with our state, local, and federal partners to seek the maximum feasible reductions from sources under their jurisdiction, and with Cal/EPA agencies to address potential impacts on other media.

  - Propose California adoption in 2001 of national emission standards and subsequent adoption of low sulfur diesel fuel requirement for on-road trucks, as well as off-road equipment.
  - Adopt and begin implementing emission standards in 2001 for new inboard and stern drive boats.
  - Implement an air toxics measure in 2001 to cut asbestos emissions from construction and quarrying operations.
  - Propose emission standards and a certification program in 2001 for distributed energy generation sources.

- Implement risk management guidelines in 2001 for sources of lead.
- Propose community-oriented measures in 2001-2002 to reduce metals and volatile compounds used in auto refinishing and to tighten chrome-plating standards.
- Continue to implement the Carl Moyer program for diesel engines and the electric vehicle incentive program to encourage the early use of clean technologies through 2001-2002.
- Propose regulations, guidance, or technical advisories in 2001-2002 to reduce emissions from existing stationary diesel engines, small boilers, and large water heaters.
- Propose standards in 2002 to cut evaporative emissions from lawn and garden equipment.
- Propose an air toxics measure in 2002 to reduce exposure to formaldehyde from composite wood products.
- Propose statewide retrofit emission control requirements in 2002 for electrical generation facilities.
- Work with the Collaborative for High Performance Schools and the Green Building Task Force to reduce exposure to indoor air pollution in California schools and state facilities.
- Work with air districts and other agencies to implement ARB's Smoke Management Program, including public health advisories.
- Work with our state and local partners to phase-out use of methyl tertiary-butyl ether (MTBE) in gasoline.

♦ ***Reduce the risk from exposure to particulate matter from diesel engines 75 percent by 2010 and 85 percent by 2020.***

Particulate matter from diesel fueled engines is responsible for approximately 70 percent of the known cancer risk from toxic air pollutants. Although new diesel engines are getting cleaner, these engines last a long time. In response, our program includes an ambitious component to retrofit existing engines with particulate filters where it is technically feasible and cost-effective, and immediately introduce low-sulfur diesel for use by centrally fueled fleets. We also expanded the Carl Moyer incentive program to reduce particulate matter, as well as ozone-forming emissions.

- Certify effectiveness and durability of diesel retrofits in 2001-2002.
- Seek continued funding for incentive programs in 2001-2002.
- Focus vehicle incentives on communities with high concentration of truck traffic throughout 2001-2002.

- Continue shifting diesel truck smoke inspection enforcement from highways to communities in 2001-2002.
- Facilitate targeted low sulfur fuel applications in 2001-2002 as part of the Diesel Risk Reduction Plan.
- Propose requirements in 2002 for trash trucks.
- Work with U.S. EPA to develop national low-sulfur diesel fuel requirements for off-road vehicles and equipment.

♦ ***Develop and implement the Clean Air Plan: Strategies for a Healthy Future.***

The Clean Air Plan will assemble all of ARB's control programs under one "roof," charting a 20-year plan to attain federal and State health-based air quality standards for ozone and particulate matter, plus reduce risk from diesel particulate matter and other air toxics. Strategies may include regulatory measures, partnerships, incentives, and voluntary programs. The plan will also identify our contribution to regional air quality plans required by the federal and California Clean Air Acts. ARB's Clean Air Plan will provide the overall framework to evaluate the multi-pollutant impacts of future control strategies. The Plan will also include fuel and energy efficiency strategies to cut demand and air pollution, including California's contribution to global climate change.

- Hold workshops on draft Plan and propose Board approval in 2002.

♦ ***Update the State Implementation Plan (SIP) for the San Francisco Bay Area.***

Emissions of ozone precursors have been trending downward in the San Francisco Bay Area since 1975 and are projected to continue declining through 2010. However, the Bay Area did not attain the federal ozone standard in 2000 and must update its SIP to demonstrate attainment by 2006. We are working with the Bay Area Air Quality Management District and other stakeholders to assess the emission reductions needed and identify a control strategy to attain federal standards by 2006.

- Consider an ozone SIP revision for the Bay Area in 2001.

- ***Update the SIP for the South Coast.***

  Emissions of ozone precursors and carbon monoxide have been declining in the South Coast Air Basin since 1975 and are projected to decline through 2010, despite increases in population and automobile use. These emission reductions are predominantly due to motor vehicle controls and reductions in evaporative emissions. However, direct emissions of PM10, from sources such as paved and unpaved road dust, have increased since 1975 and are projected to increase further by 2010.

  The South Coast Air Basin does not meet federal PM10 and ozone standards and has until 2006 and 2010, respectively, to demonstrate attainment for each pollutant. Part of the South Coast also continues to exceed the federal carbon monoxide standard. We will work with the South Coast Air Quality Management District, the Southern California Association of Governments, and other stakeholders to develop a comprehensive revision to the South Coast SIP. The SIP revision will include new emission data, modeling based on the results of the Southern California Ozone Study, and an updated assessment of local, state, and federal strategies to reduce emissions.

  - Develop a comprehensive SIP revision for the South Coast in 2002.

- ***Update the SIP for the San Joaquin Valley.***

  Emissions of ozone precursors and carbon monoxide in the San Joaquin Valley have been generally declining since 1985, while direct emissions of PM10 are increasing. The San Joaquin Valley failed to attain the federal ozone standard by its 1999 deadline and is being "bumped up" to a severe classification. We will consider a comprehensive revision to the Ozone SIP for the San Joaquin Valley, including significant new local, state, and federal measures. The SIP will include modeling results from the Central California Ozone Study as well as upgrades to the emission inventory.

  - Develop an Ozone SIP revision for the San Joaquin Valley in 2002.
  - Begin developing an update to the particulate matter SIP.
  - In recognition of the vital role agriculture plays in our state, we will continue to use the Air Quality-Agriculture Advisory Committee as a forum for ARB and industry leaders to discuss opportunities for the agricultural industry to contribute to clean air solutions.

- ***Encourage Californians to take actions that reduce air pollution.***

  To encourage individuals to make clean-air choices, we provide educational materials on air pollution and its impacts. We will expand our educational efforts with a special focus on children.

  - Expand and improve *The Know Zone*, ARB's educational web pages.

- Form long-term partnerships with the Department of Education, county offices of education, and school districts and search for opportunities to work with informal educational institutions such as museums, exploratoriums, and state and local parks.

Goal 2: Incorporate environmental justice principles into ARB actions to reduce the impacts of air pollution on California communities, especially low-income and minority communities.

Over the last two decades, ARB policies and programs have helped to reduce the health risk from air pollution across California. However, we recognize the need to address neighborhood-scale air quality issues. We will work to integrate environmental justice into all of our programs, policies, and actions and to improve our outreach efforts to ensure everyone has an opportunity to participate fully in their development and implementation.

- ***Expand outreach and educational efforts in communities to raise awareness, provide opportunities for full participation in the decision-making process, and ensure easy access to information.***

  Understanding the concerns of local residents is the foundation of an effective environmental justice program, and community participation is essential to the success of programs to assess and reduce risk. The best way to promote productive dialogue is to meet with residents in their own communities. In cooperation with the air districts, we will hold community meetings to provide direction on ARB policies and programs, develop risk reduction efforts, and address other environmental justice concerns. We will provide communities with technical assistance and information about their local air quality and health risks.

  - Hold community meetings in 2001-2002 at each site selected for monitoring under Senate Bill 25, Escutia, 1999 (SB 25).
  - In 2001, begin mapping cumulative health risk from air pollution in communities based on available data.
  - As appropriate, provide community meeting notices, web pages, contacts, and translation assistance in Spanish.

- ***Assess and reduce air pollution emissions and impacts on communities.***

  From a community perspective, air pollution generated nearby can be a greater concern than regional smog. ARB's Neighborhood Assessment Program monitors the air in selected communities to evaluate cumulative exposure to air toxics and other air pollutants. Additional monitoring efforts at schools, day care centers, and other locations will help us evaluate whether State air quality standards adequately protect the health of infants and children.

Measures implemented under ARB's Diesel Risk Reduction Plan will provide substantial benefit to communities with high traffic volume and proximity to freeways. We will tailor strategies for other pollutants to reduce localized impacts on each community, such as additional control of air toxics in urban areas or enhanced smoke management programs in rural areas. ARB will also promote pollution prevention as a means to reduce pollution generation.

- Propose Environmental Justice Guidelines in 2001 to turn principles into action at the state and local level.
- For existing facilities, take early action to reduce emissions and risk through State toxics measures and suggested control measures for district action.
- Conduct a pilot pollution prevention project with the Department of Toxic Substances Control in 2001-2002 to reduce the health risk from commonly used toxics by working with businesses in affected communities to find alternative compounds or techniques.
- Work with the Bureau of Automotive Repair in 2001-2002 on the low-income vehicle repair assistance program to provide immediate clean air benefits and assistance in meeting the Smog Check program requirements.
- For new facilities, in concert with local agencies, develop guidance in 2002-2003 for local decision-makers on cumulative impacts from air pollution to improve local land use decisions and reduce future problems.
- Provide results from Barrio Logan assessment and begin Neighborhood Assessment Program efforts for two additional communities in 2001-2002.
- Begin or continue air monitoring in 2001-2002 at six locations near schools, day-care centers, and recreational facilities as part of SB 25.
- Begin dioxin monitoring, monitoring around refineries, and other neighborhood-scale air quality evaluations in 2001-2002.
- In 2001-2002, develop GIS-based maps showing air pollution sources and levels to assist in identifying communities at risk.

- ***Strengthen enforcement at the community level.***

  We will work with the air districts to ensure strong enforcement of existing air quality requirements at the community level and prompt investigation of air pollution complaints from residents. We will put penalty monies, or "supplemental environmental projects" imposed in lieu of penalties, back into the community that suffered the violation.

- Develop, in 2001, recommendations for uniform enforcement practices for refineries.
- Focus enforcement of ARB's roadside and fleet inspection programs for trucks in 2001-2002 on communities with a high density of truck traffic.

Goal 3: Promote the development, commercialization, and use of zero- and near-zero emission technologies.

Development of low-emission technologies has helped California significantly improve air quality while accommodating growth. Many of these gains will be offset, however, by continuing rapid growth in population and vehicle miles traveled. The development, commercialization, and use of zero- and near-zero emission technologies is needed to achieve and maintain federal and State air quality standards, plus reduce toxic air emissions.

- ***Demonstrate the viability and promote commercialization of fuel cells in many applications.***

  Fuel cell technology has advanced rapidly in recent years and shows potential for use in a variety of both stationary and mobile applications. Fuel cell electric vehicles promise the air quality benefits of battery-powered electric vehicles, combined with the driving range and convenience of conventional gasoline engines.

  - ARB will continue to be an active member of the California Fuel Cell Partnership—a collaboration of auto manufacturers, fuel cell developers, fuel providers, and other government agencies—to demonstrate the viability of fuel cell vehicles, increase public awareness of fuel cells, and explore how to best commercialize fuel cell technology.
  - ARB will support non-vehicular fuel cell use via the Stationary Fuel Cell Collaborative which will fund pilot projects, facilitate the siting of fuel cells in California, adopt and implement policies for use of fuel cell in distributed generation, and promote fuel cell education and outreach.

- ***Encourage the placement of zero- and near-zero emission vehicles in transportation systems.***

  A car sharing system that uses zero- and near-zero emission vehicles has the potential to reduce traffic congestion and energy consumption. By linking this system with corridor mass transit, we can also encourage use of mass transit for the daily commute. ARB will support the development and demonstration of the infrastructure (reservation management, billing, vehicle tracking) and institutional arrangements needed to successfully deploy such integrated approaches. ARB will ensure that the Low Emission Vehicle program's credit

mechanism provides strong incentives for the use of zero- and near-zero emission vehicles in such systems.

- Form a partnership with public agencies, vehicle manufacturers, and researchers to promote the deployment of a demonstration project by 2003.

- ***Support technologies that promote emission reductions with Innovative Clean Air Technologies (ICAT) funds.***

  ICAT funding promotes pollution prevention and control technologies by providing capital for the demonstration phase of product development, when few other sources of public or private funding exist. ICAT provides matching funds for prototype creation and field demonstrations of innovative technologies that can help reduce emissions and control costs, promote new industries and jobs in California, and improve industrial productivity.

  - Select projects for ICAT funds of $1.4 million in 2001.

- ***Pursue pollution prevention strategies.***

  As population growth in California offsets emission reductions achieved by existing controls on area sources (like coatings, solvents, and consumer products), use of less-polluting alternatives is critical. We will promote the development and commercialization of these alternatives and, when feasible, define suggested control measures for water-based solvents and other emission-reduction strategies.

  - Integrate the push for zero and near zero-emission technologies into all ARB air quality improvement programs.
  - In 2001, propose elimination of automotive coatings that contain hexavalent chromium or cadmium.

Goal 4: Ensure our regulatory programs achieve the necessary emission reductions through compliance assistance paired with aggressive, firm, and fair enforcement.

ARB takes great pride in implementing regulations and other programs to improve air quality by limiting or eliminating emissions from statewide sources of air pollution. ARB has established many innovative regulatory programs, but these programs will not deliver the necessary emission reductions unless they are fully implemented, which requires both compliance assistance efforts and an aggressive, firm, and fair enforcement program.

- ***Evolve ARB's mobile source enforcement program to ensure the effectiveness of new control strategies and initiatives.***

  As we continue to adopt strategies to reduce emissions from a broader array of sources, we will evolve our compliance efforts to ensure we achieve the expected benefits from these new regulations.

  - Develop a computer based tracking system for lawn and garden equipment including averaging, banking, and trading by model year.
  - Provide guidance and feedback to off-road engine manufacturers as they develop equivalent alternate test procedures.
  - Increase surveillance of off-road manufacturer production and production-line procedures.

- ***Coordinate multi-media inspections and investigations in accordance with Cal/EPA's multi-media enforcement goals.***

  Pollution transcends geographic boundaries and impacts air, water, and land. Enforcement and compliance assurance strategies and initiatives should reflect the multi-media nature of environmental problems. Last year, in concert with the Department of Toxic Substance Control and the State Water Resources Control Board, we completed the Multi-Media Chrome Plating Project. The general objective of the study was to enhance enforcement coordination among Cal/EPA agencies by allowing regulatory personnel (from Cal/EPA and local agencies) to become more conversant with each other's environmental regulations on a practical basis. We will apply the lessons learned in this project as we continue to coordinate multi-media initiatives.

  - Coordinate inspections and investigations with other Cal/EPA agencies.

- ***Support efforts to improve local air district enforcement and permitting programs.***

  Reducing emissions from sources under ARB's authority is only part of the solution. Local air district programs are essential. We will strengthen our assistance and oversight efforts on local air district compliance and enforcement programs through district program evaluations and source inspections. These programs provide critical independent feedback and help ensure a level playing field for all California businesses.

  - Work with air districts through committees of the California Air Pollution Control Officers Association to enhance enforcement statewide.

Goal 5: Improve our scientific understanding of the relationship between air pollution and health effects.

ARB's health research program is continuing to advance our understanding of the link between air pollution and public health. Our increasing emphasis on community health and environmental justice is driving our research on the health effects of individual and multiple air toxics, as well as the impacts of air pollution on vulnerable populations. Our indoor air quality and personal exposure program is helping us to better understand the sources and health effects of airborne pollutants in schools, homes, and workplaces. Analysis of the adequacy of state ambient air quality standards to protect infants and children will provide the foundation for future health-based air quality standards.

- ***Review the adequacy of state air quality standards for particulate matter, sulfates, ozone, and nitrogen dioxide to protect the public, especially infants and children.***

  The Children's Environmental Health Protection Act requires ARB and the Office of Environmental Health Hazard Assessment to review all health-based State ambient air quality standards for their adequacy to protect the public, especially infants and children. ARB's initial report indicates California standards for particulate matter and sulfates, ozone, and nitrogen dioxide may not be adequate at their present levels to protect infants, children, and other vulnerable populations.

  - Review and consider revisions of the particulate matter and sulfates standards in 2002.
  - Review and consider revisions of the ozone and nitrogen dioxide standards in 2003 and 2004, respectively.

- ***Complete field research for the Children's Health Study to investigate the effects of long-term air pollution exposure on children's lung development.***

  The Children's Health Study is evaluating 5,200 children over a ten-year period to determine the effects of long-term exposure to air pollution on lung function and asthma development. This research will help us identify the specific smog components responsible for respiratory problems in children and the lowest effect levels over long-term exposure. We will also look more closely at mobile sources, including traffic patterns that may have a localized impact on children's respiratory health.

  - Complete fieldwork for the study in 2001.
  - Enhance our monitoring network to investigate the role of ultrafine particles in children's health.

- ***Continue research to understand the relationship between air pollution and asthma in children.***

  In the Fresno Asthmatic Children's Environmental Study (FACES) we will focus on how air pollution exposures impact the progression and severity of asthma in children. We will pursue research on how short- and long-term exposure to particulate matter may affect the development and progression of cardiovascular disease and how asthmatic children respond to ambient VOC levels.

  - Continue to track air contaminant exposure and respiratory health of children for the Fresno study.

- ***Improve our understanding of exposure and health effects from indoor air pollution.***

  In collaboration with U.S. EPA, ARB determined that Californians are exposed to indoor levels of particles and air toxics that are much greater than outdoor levels. We will continue and expand ongoing research, including studies to evaluate children's exposures in portable and traditional classrooms; children's exposure during their school bus commutes; and personal and residential exposure to particulate matter.

  - Survey environmental conditions and pollutant levels in classrooms during 2001-2002.
  - Measure indoor and personal exposures to particulate matter, formaldehyde, and volatile organic compounds in classrooms during 2001-2002.
  - Assess students' health status through a survey regarding asthma and allergies in three SB 25 communities.
  - Characterize children's exposures during school bus commutes, specifically while riding on buses, waiting at bus stops, or waiting near idling buses during loading.
  - Examine the relationship among indoor, outdoor, and personal exposure levels of particulate matter and other pollutants in people's homes.

Goal 6: Improve our technical tools to assess the nature and sources of air pollution, and to evaluate the effectiveness of air quality improvement strategies.

Key to the air quality progress California has made is the robust data and analytical tools underpinning our plans, initiatives, and regulatory strategies. We will continue to use the best science to answer the basic questions. To what pollutants and how much are people exposed? What are the pollution sources

and how much do they emit? How does pollution move, react, and accumulate in the atmosphere?

- ***Develop the atmospheric modeling capability needed to support attainment demonstrations for the State ozone standard.***

  During the first decade of the California Clean Air Act, we understood that meeting the ambitious goal of achieving the State ozone standard required an all out effort. Our plans stressed adoption of all feasible control measures as quickly as possible. We have not had the air quality modeling capability to estimate the emission reductions needed to attain the State standard or project when an area will attain. Now, based on the work of the Southern California Ozone Study and the Central California Ozone Study, we will have the tools to assess more rigorously our clean air needs. We will work with local air districts to incorporate these tools into their 2003 California Clean Air Act plans for ozone.

  - Develop State ozone standard modeling capability for all regions in 2002-2003.
  - In 2002, use air quality models to begin qualitatively assessing transport between regions and the impact of upwind and downwind controls.

- ***Refine our understanding of particulate matter pollution.***

  Particulate matter pollution is a complex mixture. A science-based understanding of the nature of the problem, the relative contribution of pollution sources, and how it varies by area, is critical to California's development of effective emission control strategies. We are committed to continuing and expanding our existing efforts to close the knowledge gaps in primary and secondary particulate emission estimates. The California Regional Particulate Matter Air Quality Study is a vital tool in this effort. A partnership of government, academia, and industry (including agricultural and oil representatives) cooperated on the design, funding, and operation of the three year Study, as well as an intensive ozone field program.

  Reducing urban particulate levels has much in common with existing ozone control strategies because many of the same chemicals contribute to atmospheric formation of both pollutants. ARB will work with the local air districts to integrate particulate matter and ozone strategies into the Los Angeles area and the San Joaquin Valley SIPs. In the San Joaquin Valley, we will continue to build on the public-private Study partnership as a mechanism for facilitating that integration.

  - In 2001-2002, conduct analysis and modeling of the data collected during the particulate and ozone studies.

- Expand our capability, in 2001-2002, to monitor and speciate fine particulate matter (PM2.5) by deploying 15 additional PM2.5 mass monitors and 11 additional filter-based speciation sites.

- ***Improve our understanding of the ecological effects of air pollution, including the deposition of air pollution to water bodies.***

  California's natural resources are integral to the state's economic productivity and environmental health. Studies indicate that air pollution deposition to land and water damages native pine forests and other ecosystems and contributes to crop injury throughout the state. Deposition of airborne oxidants and nitrogenous pollutants also pose a threat to aquatic ecosystems and water quality. We will pursue a better understanding of the ecological and multimedia effects of air pollutants on California's natural environment and pursue funding for research to improve our scientific understanding of the relationship between air pollution and ecological effects.

  - Support efforts to understand better the relationship between trees and other vegetation and air quality.
  - Participate in efforts to assess and protect the Lake Tahoe environment.

- ***Assess and improve air quality in the California-Mexico border region.***

  We are working with U.S. and Mexican environmental agencies to develop the programs and technical tools needed to improve air quality in the California-Mexico border region. Through our cooperative efforts, we have established an extensive monitoring network in Mexico and along the border, developed emission inventories for the cities of Mexicali and Tijuana. We are also pursuing refinements in the region's motor vehicle emissions inventory. These programs will help us better understand the causes and severity of air pollution at the border, assess pollutant transport, and develop strategies to improve air quality. We are also participating in the Cal/EPA Border Environmental Program with the Resources Agency, Attorney General's Office, Baja California Direccion de Ecologia (Department of Ecology) and other stakeholders to identify and resolve multimedia environmental and public health concerns.

  - Add a full-time heavy-duty vehicle inspection team at Calexico in 2001 and increase the number of emission inspections at the Otay Mesa and Calexico international ports of entry in 2001-2002.
  - Utilize air quality data from fifteen monitors in the border region to better assess the causes and severity of air pollution in 2001-2002.
  - Assist the city of Tijuana in implementing a pilot vehicle inspection and maintenance program in 2001-2002.

Goal 7: Recognize ARB employees' expertise, innovation, and commitment to public health and clean air.

ARB's employees are the Board's most valuable resource. We recognize the importance of providing staff with a work environment that enables them to effectively use their skills and talents. Our commitment includes recognizing achievement and innovation, providing career development opportunities, and promoting open communication between ARB staff and management.

- ***Recognize ARB employees' accomplishments.***

  To recognize the unique contributions of ARB employees to California's clean air efforts, we are establishing the first annual Executive Officer's Awards of Excellence.

  - In 2001-2002, establish the Executive Officer's Annual Awards of Excellence.

- ***As a management team, provide staff throughout the organization with training and development opportunities.***

  Under the leadership of the Executive Officer, the management team will work to provide training and development opportunities through team projects, in-house seminars, technical conferences, formal training courses, new assignments, and other mechanisms.

  - Through the management team, we will solicit input from ARB's employees on the types of opportunities of most interest.

- ***Foster open communication within ARB.***

  Some of the Board's most innovative ideas come from staff involved in day-to-day program implementation. We will pursue opportunities to improve communication, remove bureaucratic hurdles, and enhance the ability of ARB staff to directly communicate with ARB's Executive Office.

  - Solicit staff input on ARB's Clean Air Plan, Strategic Plan, Research Plans, and other Board priorities.
  - Provide opportunities to discuss issues with the Executive Officer during monthly "brown bag" lunches, and via the "virtual brown bag" interactive webpage.